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Crompton

June 27, 2000

Mr. Chris Kanakis
New Jersey Department of Environmental Protection
Division of Responsible Party Site Remediation
Bureau of Case Management
401 East State Street
CN-028
Trenton, New Jersey 08625

JUL 05

RE: Geovation Consultants, Inc. Proposed Anaerobic Bioremediation Pilot Study, Perth-Amboy, New Jersey

Dear Mr. Kanakis:

In accordance with our recent telephone conversation, this letter is provided to present Crompton Corporation's (formerly CK Witco/Witco) proposal to conduct an enhanced natural attenuation pilot test at the Perth Amboy Facility. As you are aware, Crompton has completed the remedial activities for soil (with the exception of imposing the deed notice) at the Perth Amboy facility, a detailed description of which is summarized in the Remedial Action Report (RAR) dated November 1998 and RAR Addendum dated July 1999. The RAR Addendum also proposes that the remedy to address residual groundwater is natural attenuation in combination with establishing a Classification Exception Area (CEA), and groundwater monitoring for a period of no more than 4 years. To enhance the natural attenuation processes and hasten the remediation of site groundwater even further that which was proposed in the RAR Addendum, Crompton requests approval to conduct a voluntary, short-term pilot study of an emerging technology which shows the potential to have beneficial impacts at this site and at others.

It is currently anticipated that the pilot study would be conducted by Geovation Consultants, Inc. (Geovation) for approximately 6-to-18 months. The study will consist of the introduction of biological nutrients into an impacted well, while monitoring contaminant concentrations and biological indicators in the impacted well and in a down-gradient well. The primary constituent of concern is trichloroethene (TCE). A necessary step in the bioremediation of chlorinated aliphatic compounds is the anaerobic dehalogenation of the compound. To enhance the anaerobic processes, it is proposed that limited quantities of aqueous nitrate salts be amended to the ground water. Geovation's previous experience in both New York and New Jersey is that these nitrates are quickly consumed by native bacteria and are rarely detected above background concentrations in downgradient wells. However, nitrate is listed as a ground water contaminant, therefore we are requesting approval from the NJDEP to perform this pilot-test.

The nitrate will be amended to groundwater in an *in-situ* treatment area. Within that treatment area, nitrate levels are designed to exceed NJDEP ground water quality standards, however outside the treatment area background concentrations of nitrate will not be increased. It is Geovation's experience at other sites implementing similar *in-situ* technologies which utilized much greater amounts of nitrate, that elevated nitrite concentrations will not be observed outside

the designed treatment area. During this pilot study, downgradient conditions will be monitored to verify this experience. As indicated above, biological nutrients will only be added to one impacted well and monitoring of contaminants and biogeochemical parameters will be performed in the impacted well and one downgradient well. As nitrate levels will not be effected outside the *in-situ* treatment area, it is our understanding that no permits would be required to implement this pilot study. Please contact us if the NJDEP determines that a permit, such as a "permit-by-rule", are required implementing this voluntary pilot-study.

Scope of Work

The pilot study will be conducted on impacted well MW-1S and downgradient well MW-8S (see attached site map). Prior to conducting the pilot-study, baseline measurements will be collected for: (i) Method 8260 VOCs; (ii) biogeochemical parameters (including pH, Eh, DO, nitrate, nitrite, ammonium, orthophosphate, complex phosphate, sulfide, bicarbonate, iron and manganese); and (iii) microbiological parameters (including bacterial populations, size and morphology). VOCs, iron, manganese and bicarbonate will be measured by a NJDEP certified contract laboratory. Geovation will measure pH, Eh, and DO on-site using calibrated field instruments. Geovation will conduct the microbiological and biogeochemical analyses at our bioremediation laboratory in New York.

After the completion of the baseline sampling, Geovation will conduct a two-step batch-treatment of ground-water via the use of MW-1S. First, Geovation will introduce a proprietary anaerobic bioremediation nutrient solution into MW-1S. Next, Geovation will install an Anaerobic Bioremediation System (ABS) adjacent to MW-1S to provide for the automated delivery of small, discrete amounts of additional nutrients over a subsequent four-to-six week period. The required parameters listed above will be monitored periodically for the two wells of interest and the pilot study will be evaluated based on the results of this subsequent scheduled sampling. Upon completion of the study, Crompton will prepare and submit a concise report on the results thereof.

Thank you for your cooperation in the implementation and evaluation of this voluntary, pilot-scale demonstration of an emerging technology. Please contact us by July 7, 2000 to advise if additional permits will be required. If you have questions regarding the pilot study or require additional information, please do not hesitate to contact me at (203) 552-2477.

Sincerely,

Marie Pittignano

Marie Pittignano
Manager, Environmental Remediation

CC: B. Zimmer
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